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HOW TO OBTAIN
POSITIVE AND NEGATIVE PICTURES
ON
COLLODIONIZED GLASS
AND

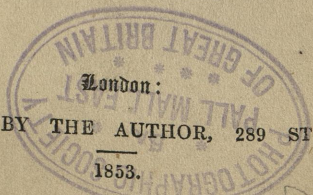
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A SHORT SKETCH
ADAPTED FOR THE
TYRO IN PHOTOGRAPHY.

BY J. B. HOCKIN,

Operative Chemist.

London:
PUBLISHED BY THE AUTHOR, 289 STRAND.
1853.



INTRODUCTION.

My object in writing the following short sketch of the Collodion and Positive Paper process being simply to offer a few plain rules to those who are totally unacquainted therewith, or whose knowledge of chemistry is either nothing, or very limited. I shall carefully abstain from entering into discussing the theories involved, or the more abstract principles on which the art of Photography is founded, and content myself with merely indicating such methods of manipulation as a somewhat extended experience has taught me succeed best; and by carefully following which, I flatter myself, beginners will avoid many of those difficulties which cause so much disappointment.

I would beg to refer those who have already some practical acquaintance with the subject, or who desire more ample details upon its various branches, to a work which is now preparing, and which I hope shortly to present to the public. Trusting in the mean time that those who wish to master the minor details may find sufficient in the present modest sketch to enlighten their early steps, and encourage them to progress in this most delightful art.

J. B. HOCKIN.

INTRODUCTION

It is a common mistake to suppose that the history of photography is a mere chronicle of the progress of the art. In fact, it is a history of the human mind, of the struggle to understand the world, and of the triumph of science over superstition. The history of photography is the history of the human mind, of the struggle to understand the world, and of the triumph of science over superstition. The history of photography is the history of the human mind, of the struggle to understand the world, and of the triumph of science over superstition.

I would like to refer those who have already some practical acquaintance with the subject, or who have more or less familiarly with the various branches of a work which is now appearing, and which I have thought it proper to the public. I would like to refer those who have already some practical acquaintance with the subject, or who have more or less familiarly with the various branches of a work which is now appearing, and which I have thought it proper to the public.

J. W. HOGKIN.

Photographic Process
UPON
COLLODIONIZED GLASS.

CHAPTER I.

APPARATUS.

THE instruments required in the Collodion process are not numerous, nor are they necessarily expensive. The most important is the

CAMERA, a box blackened internally, and composed of two compartments, sliding the one within the other. The larger portion, or front, has fitted to the centre of its anterior extremity, the

LENS which should be *Achromatic*, *i. e.* composed either of *two glasses* of different refractive power, forming a *single combination*, usually mounted in a brass tube, either simply sliding within another tube, or adjusted by means of a *rack and pinion*; or of *four glasses* forming a *double combination*. The second portion of the Camera has at its posterior extremity grooves to which are adjusted the dark slides and the frame which carries the ground glass for focussing, *i. e.* a surface whereon the image projected by the lens is visible.

A TRIPOD STAND to support the Camera at the medium height of the eye.

A VERTICAL TROUGH and dipper composed of glass or gutta percha for immersing the glass plates, which are best cut from what is known as No. 1 patent plate, Two one ounce graduated measures, two funnels, some filtering paper, and three cloths, (one of which may be replaced by an old silk handkerchief, or a piece of wash-leather, freed by rinsing from the chemicals used in its preparation,) complete the list of apparatus absolutely required for the Collodion process.

CHAPTER II.

The chemicals required are few in number, but being exceedingly delicate, their preparation will be best left unattempted by beginners; more especially as they are now obtainable in a high state of purity and at a sufficiently moderate price from the Operative Chemist. They consist of

IODIZED COLLODION, a liquid made from a chemical allied to gun cotton dissolved in alcoholized æther, in conjunction with certain alkaline iodides. This material is very volatile, and must therefore be preserved in a bottle with a well ground glass stopper, (a cork would entirely spoil it,) kept in a cool situation at a distance from the fire or a lighted candle; inattention to the latter observation has caused many accidents.

THE SENSITIZING AGENT, nitrate of silver in crystals, not the ordinary fused in sticks, which is nearly always confessedly adulterated; it is thus employed:—

THE SILVER	{	Nitrate of silver 5 drachms,
OR		Distilled water 10 ounces,
NITRATE BATH.		Dissolve and add iodized collodion 2 drachms.

Shake these well together, allow them to macerate twelve hours, and filter through paper. Before adding the nitric acid, test the liquid with a piece of blue litmus paper, if it remain blue after being immersed *one minute*, add *one drop* of dilute Nitric Acid,* and test again *for a minute*, and so on, until a claret red is indicated on the paper. It is necessary to test the bath in a similar manner, frequently adding half a drop to a drop of dilute acid when required. This precaution will prevent the *fogging* due to alkalinity of the bath so formidable an obstacle to young hands.

The picture is *latent* on the plate being taken from the camera, it requires to be rendered visible by pouring on the plate one of the following

DEVELOPING AGENTS.

PYROGALLIC	{	Pyrogallie acid 3 grains,
SOLUTION.		Glacial acetic acid 1 drachm,
		Soft water 4 ounces.

OR,	{	Proto-sulphate of iron 160 grains,
PROTO-NITRATE		Distilled water 2 oz.,—dissolve,
OF IRON.		Nitrate barytes 150 grains,
		Boiling distilled water 2 oz.,—dissolve.

Mix the solutions, allow the deposit to subside and mix as follows:

{	Clear liquid 3 ounces,
	Glacial acetic acid $1\frac{1}{2}$ drachms.

* Dilute Nitric Acid, Water 50 parts, Nitric Acid 1 part.

OR, PROTO-SULPHATE OF IRON.	{	Pro-sulphate of iron 10 grains, Distilled water 1 ounce, Glacial acetic acid 20 minims, Dilute nitric 5 minims.
-----------------------------------	---	--

All these solutions, except the silver bath, should be made in small quantities at a time, as they do not keep well. The silver bath requires replenishing with a drachm of nitrate from time to time, (say after taking with it fifty pictures four inches by three.) It must necessarily become invalidated by long continued use, but as yet, I have never met with an instance.

FIXING MATERIALS.

HYPO' SOLUTION.	{	Hyposulphite of soda 2 ounces, Soft water 5 ounces,
--------------------	---	--

OR,	{	Cyanide of potassium 20 grains, Soft water 1 ounce.
-----	---	--

The hypo' should be carefully kept at a distance from the other chemicals, the slightest trace of it in them will infallibly spoil them. If the hands, after using it, be wiped on one of the *three cloths*, or if they only touch them, it will be perceived upon the picture in the form of *dirty "smears"* between the glass and the film.

The cyanide is also useful for removing the silver stains from the hands or linen; the only care necessary in using it being not to employ it except on the hands, where the skin is hard, and avoid its entering a cut or wound.

If a glass room be obtainable, it should be chosen with preference with a northern aspect, and be provided with calico blinds over head and around to shut out any excess of light. The management of light is one of the most difficult points in portraiture. A moveable back ground of blanket, or any *light* yellow material, should be placed behind the sitter.

Before we leave the subject, it will be proper to remark that colours make a very different impression upon the photographic plate to that upon the *eye*. Thus *blues* are all more or less *white*. *Red* and *yellows* nearly black. Now, as all other colours are but compounds of these, it follows that actinic light is to a great extent invisible to the eye, the blue Ray being situate at the extreme limit of the *visible* Spectrum.

CHAPTER IV.

CLEANING THE PLATE.

First clean the plate by pouring over it a small quantity of Cyanide of Potassium solution; rinse it in an abundance of water, wipe with one cloth, dry it perfectly with another, and finish off by polishing with the handkerchief or leather appropriated solely thereto. The Cyanide replaces with advantage both Nitric Acid and Ammonia, the fumes of both which are noxious in the operating room; indeed, a very small proportion of the latter is sufficient to "fog" any number of pictures.

COATING THE PLATE.

Hold the glass plate by one of its corners between the thumb and finger of the left hand, remove the stopper from the Collodion bottle by the little finger of the same hand, and cleanse the mouth from any dry material, (which falling on the plate would occasion spots, technically "comets:") then pour on to the centre as much Collodion as it will hold, and cause it to flow successively to each corner, avoiding the thumb; pour finally off at the corner nearest the body into the bottle, keeping up an oscillatory movement until it ceases to drip. Replace the stopper, keep the glass in the same position, and as soon as the thick edge appears set, place on the *dipper*, and proceed to *immersion in the nitrate bath contained in the dark room*. This must be done boldly, and without stopping, as each rest causes a streak across the plate. The film will appear at first *blue opal*, and will thence pass through all degrees of *opal yellow*, until it attains a rich *creamy yellow*; it has then its maximum of sensitiveness, and must be taken out from the bath, placed for ten seconds with one edge in contact with blotting paper, and immediately transferred to the dark slide.

If left in the Silver Bath many seconds after the cream-yellow is produced, the sensitiveness is much diminished, as little time as possible must be allowed to intervene between this operation and the exposure in the Camera, as, if the plate dries it loses the greater portion of its sensitiveness; under ordinary circumstances ten minutes is the greatest length of time allowable. If more than five minutes elapse, re-dip

the plate in the Nitrate Bath before developing. "Archer's Bath," a wedge-shaped vessel of plate glass, effectually obviates the inconvenience above remarked, as the plate is impressioned during its stay in the Bath, and may be kept hours both before and after exposure. Of course I must not be understood to mean that the film is all this time soaking in the liquid; it is withdrawn from its influence by being placed in contact with the vertical front of the bath.

Mr. W. CROOKES has happily illustrated the principle herein involved, by enclosing the *sensitive film* between two pieces of plate glass, the cohesion between which is amply sufficient to prevent drying and loss of sensitiveness.

FOCUSSING.

The accessories of the picture having been previously arranged, place the sitter in such a position that as much as possible of the person may be in one vertical plane; all parts nearer the lens than this are magnified, those more remote diminished, and both *out of focus*, (known by their outline appearing indistinct.) The camera being then turned towards the person, the *sliding portion* is drawn out until the image appears on the ground glass; the screw being then fixed, gives the rough adjustment; the fine is obtained by moving the milled head attached to the lens: it is usual in portraiture to focus upon the eye, or on the face generally. The camera should be always placed horizontally, the tripod being raised or depressed, so that the picture may always occupy the centre of the

field. The right focus being obtained, put on the cap of the lens, and replace the focus glass by the slide containing the prepared plate: now draw up the shutter and proceed to the

EXPOSURE TO THE LUMINOUS IMAGE.

You effect this by directing the sitter to keep the eye fixed upon a certain spot previously arranged during the focussing, and, requiring absolute immobility, *take off the cap from the lens* during a period varying from one or two seconds, in strong light, to a minute and a half in dark weather. Experience only can determine this. Replace the *cap*, close the shutter, and take the *slide* to the dark room.

TO DEVELOPE.

Hold the plate by the corner denuded of collodion, pour thereon the appropriate quantity of developing solution, (a picture 5 by 4 inches requires 3 drachms,) it will be found not to flow uniformly, you effect this object by pouring off again into the measure, again pouring on, and if necessary, repeating the operation. The first effect is the appearance of the high lights; these, if the picture have had the right exposure are soon followed by the half tones, and within a minute or two by the lowest tones, (shades of a black coat for example.) When these appear, a stream of water should be directed over the surface to wash off the developant, if a *positive picture* be desired; but if a *negative*, continue the developing, holding the plate over some white object, as long as the high lights retain their

light, presents a perfectly confused picture ; the *lights* are *white patches*—the shades grey ones : by transmitted light, the shades are found to be nearly (not quite) transparent ; from these up to the highest lights, the gradation of intensity in the black deposit uniformly increases until it becomes absolutely opaque. This is a general rule. I have seen negatives print admirably which were blood red and translucent on looking through them, and others *perfect negative* and *positive* at the same time.

I have endeavoured, in the foregoing remarks, to give as clear an idea, as I conceive possible, of the Collodion process, and indicate such shoals as shipwreck most inexperienced hands. I am far, however, from presuming that any written instructions will equal an ocular demonstration, and such, all Vendors of apparatus should be required to afford PURCHASERS. As I before observed, this sketch is intended simply as a plain guide to those whose knowledge of such subjects is very limited, and who have not ready access to higher and practical authority.

PART SECOND.

POSITIVE

Photographic Process;

OR

PRINTING FROM GLASS NEGATIVES.

CHAPTER I.

APPARATUS.

Three glass or porcelain dishes, some pins bent like
S. Two glass rods, a quire of white blotting paper,
and the

PRESSURE FRAME.

A rectangular frame of wood with a rebate, serving as support to a thick glass plate, backed by the pressure board, consisting of three pieces hinged together in such a manner that the outside thirds may be individually lifted without disturbing the remainder. The pressure is obtained by two screws working through cross pieces fitted into, and sliding in grooves in the frame.

Procure some fine close-grained, even-textured, satin paper, (many excellent qualities are now in the market, that by Towgood is the best I have yet tried,) immerse it, a sheet at a time, in

SALTING	{	Muriate of ammonia 100 grains,
SOLUTION.		Distilled water 10 ounces

by carefully laying down at first the edge, and gradually extending the whole sheet into contact with the fluid surface, avoiding the enclosure of air bubbles, causing the liquid then to flow over the upper part by drawing a glass rod over it; repeat this with each sheet until a dozen are immersed. Now turn the mass of paper over, pick out the bottom sheet (now uppermost,) and attach it by the bent pin by one corner to a line, and so on with the rest.

When dry, brush each sheet over with a silk handkerchief, to remove any crystals of the salt, and preserve in a portfolio labelled, SALTED PAPER. This keeps indefinitely. By replacing half the water by the white of fresh eggs, beating up well, and after allowing twelve hours repose, straining, we obtain the ALBUMENIZED PAPER.

A few hours before it is required for use, take each sheet of salted paper, ascertain its *right side*, i.e. that on which the wire marks are least apparent, and mark it in the corners with a pencil; take it into the dark room and *float* on the surface of

THE SILVER	{	Nitrate of silver crystallized 4 drachms,
SOLUTION.		Distilled water 4 ounces.

Carefully abstaining from wetting the back; when the paper loses its rigidity (usually in about three or four minutes) take it out, pass a pin through one

corner, and hang to dry on a line, attaching a piece of blotting paper to the inferior angle. Few sheets must be prepared at once, as they will not keep many days, even though preserved in a close dark portfolio. This constitutes the NITRATED OR POSITIVE PAPER.

PRINTING.

Place the negative with its back on the inside surface of the glass plate of Pressure Frame, cover it with a piece of positive paper marked side downward, and interposing between it and the pressure board three or four thicknesses of flannel, press the whole into contact.

Turn the surface of glass plate now upwards in such a way that the sun's rays fall perpendicularly on it, and leave it until a small portion of the paper (left purposely uncovered) assumes a dark maroon tint; then lift one portion of the pressure board and see if the high lights are sufficiently printed. You judge this by their presenting a tint many shades darker than they ought to remain in the finished Picture.

Remove now to the dark room, and immerse quickly in the

TONING
BATH.

{ Hyposulphite of soda 1 ounce,
Blackened chloride of silver 15 grains,
Saturated solution of iodide silver in hypo' 20 minims,
Soft water 6 ounces.

If you desire brown or bistre tones, but if black or purple blacks, add,

{ Chloride of gold 3 grains,
Distilled water $\frac{1}{2}$ an ounce.

Cautiously poured *guttatim* into the first liquid kept

stirred. The first effect is to whiten the lights rapidly; if, however, it be sufficiently *printed* in, these whiten gradually, and the dark tones increase in depth and beauty of detail; when the desired tint is reached, take out, wash in a stream of water, and soak for ten minutes in the

FIXING { Hypo' 1 ounce,
BATH. { Water 8 ounces.

Nothing now remains but to wash the proof in water and allow it to soak in a large quantity for twelve hours; thence removing it, press it between the leaves of a blotting book, and iron it to finish its drying and give it a gloss. It may be now mounted in any way the fancy dictates.

The shades of color thus obtained vary directly with the length of time it is exposed in the pressure frame, and consequently the duration of immersion in the toning bath ere the required degradation of the lights is produced.

The toning bath requires the addition, from time to time, of a few drops of the hypo' iodide solution, also of the gold, if it be used. It is well always to keep this bottle full, by making up the loss after each time of using from the fixing bath, refreshing the latter with new hypo.'

The albumenized paper is thus made:—

The *paper* is floated for about four minutes on the fluid; it is then hung up to dry, with a piece of bibulous paper attached to its inferior angle to drain off the excess of liquid, and, subsequently, ironed between bibulous paper to coagulate the albumen, which other-

wise would dissolve in the silver solution, and spoil it and the paper. It is then treated in precisely the same manner as the salted paper. The proofs obtained are superior in sharpness and definition to those on the plain paper.

It is found that in the early editions and small
it will be found that it is then treated in a
the same manner as the other paper. The paper is
found to be superior in character and definition to the
on the plain paper.

A CATALOGUE

OF

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Operative Chemists,

289, STRAND, LONDON.

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No. 1.—Best French Polished Mahogany Camera, of very superior workmanship, with sliding body, fitted with focussing glass, two dark slides, (each with frames of three sizes,) and a best quality, double combination, <i>Achromatic</i> $\frac{1}{4}$ -plate Lens of, $1\frac{1}{2}$ inch aperture, adapted for portraits, up to $3\frac{1}{4}$ by $4\frac{1}{4}$ inches	4 10 0
No. 2.—Ditto, ditto, with a $\frac{1}{2}$ -plate Lens, $2\frac{1}{4}$ inch aperture, adapted for portraits, up to $4\frac{1}{2}$ by $6\frac{1}{2}$ inches	7 10 0
No. 2A.—Ditto, ditto, with adjusting Front and an additional single Achromatic Lens, for Landscapes, up to 7 by 7 inches	10 0 0
No. 3.—Best Camera as before, with double combination, Achromatic Lens, $3\frac{1}{4}$ inch aperture, for portraits, $6\frac{1}{2}$ by $8\frac{1}{2}$	13 10 0
No. 3A.—Ditto, ditto, with an additional Lens, for Landscapes, to 10 by 8 inch	16 16 0
If desired, one slide in the Camera may be replaced by an Archer's Bath in slide.	

These Lenses are all of the best quality and workmanship, and mounted with delicate rack and pinion movement. There is perfect coincidence between their

Visual and Actinic Foci; they, as well as the Cameras, are all proved previous to sale and warranted; and the latter being of perfectly seasoned wood, they may be exported to the hottest climate.

They are adapted for Daguerrréotype, Calotype, and all the Glass and Paper processes.

SECOND QUALITY.

£ s. d.

No. 4.—Quarter-plate, Double Achromatic Lens and Camera, with two dark Slides and six frames.. . . .	3	0	0
No. 5.—Half-plate ditto, ditto	5	0	0

These Cameras are of the same construction as the former, and are, with their Lenses, equal to those sold as best by many houses.

CAMERAS.

Quarter-plate, best, <i>Vide</i> No. 1	2	0	0
Ditto second, „ 4	1	5	0
Half-plate, best „ 2	2	10	0
Ditto, for Landscape do. „ 2A	3	0	0
Ditto, second quality „ 5	1	15	0
Whole plate, best „ 3	3	10	0
Ditto for Landscape „ 3A	4	0	0

Hockin's Omnium Camera, suited for carrying on *any of the Glass or Paper Processes, and developing the Pictures in the open air without the aid of a Tent*, or any cumbrous appendage. Manipulation with this Camera is most facile, and may be acquired by any one, having already some knowledge of Photography, in a few hours. It is adapted for Lenses from four to twenty inch focus and upwards. It is very light and strong, and measures, when folded, (with sufficient room inside for all the necessities, except water, for nine Collodion Pictures, 10 by 9,) 20 by 12 by 5 inches. Price without Lens. ..

3½in. single Lens for ditto.....	5	0	0
Folding Camera, for Pictures, up to 10 by 9, offering when folded to the dimensions of 12 by 12 by 5, sufficient internal space for stowing the necessary Chemicals for the Glass or Paper Processes. This is the lightest Camera yet produced. Price with a 3½in. Acromatic Lens	3	10	0
With India Rubber Hood, for changing the Paper on Mr. Stokes's plan	9	0	0
	10	0	0

ACHROMATIC LENSES.

	£	s.	d.
$\frac{1}{4}$ Plate single, ordinary mounting	0	13	6
Do. superior sliding adjustment	1	7	6
Do. do. rack movement	1	13	0
Do. double combination $2\frac{1}{2}$ in. aperture, of very superior quality, as No. 1.....	2	10	0
Do. ordinary, No. 4	3	15	0
$\frac{1}{2}$ Plate single, $2\frac{1}{2}$ in. aperture, best quality and workmanship, rack movement, &c.....	3	0	0
Do. best, double combination, <i>vide</i> No. 2.....	5	0	0
Do. do. with Landscape combination.....	7	0	0
Do. ordinary, No. 5.....	3	5	0
Whole Plate, $3\frac{1}{4}$ in. aperture, single, best quality, sliding adjust- ment	3	10	0
Do., with rack movement	4	4	0
Do., best double combination, <i>vide</i> No. 3	10	0	0
Do., with Landscape combination	13	0	0

AIR PUMP—Hockin's Improved—for Iodizing and Sensitizing Paper. The principle here involved, viz., that of first exhausting the air, then admitting the liquid, renders this really an efficient process

0 12 6

BATHS—VERTICAL DIPPING—of Glass or Gutta Percha, holding a moderate quantity of Silver Solution for

Plates $3\frac{1}{4}$ by $2\frac{3}{4}$	0	1	6
„ $4\frac{1}{4}$ by $3\frac{1}{4}$	0	2	6
„ $4\frac{3}{4}$ by $6\frac{1}{2}$	0	3	6
„ 7 by 9	0	5	0

LARGER SIZES according to dimensions. **ARCHER'S V** shaped, of any dimension to order.

These can be fitted in a dark slide and adapted to any Camera. They hold but a very small quantity of Silver Solution, and offer the great advantage in using the Collodion Process for Interiors, &c., that as the plate is exposed while surrounded on all sides, (but the sensitive) by the Solution, however long the exposure lasts, it cannot become dry and lose its sensitiveness.

Price, with dark slide for $\frac{1}{4}$ plate Camera	0	12	0
„ „ „	0	15	0
Larger Sizes up to 10 by 10 „	1	0	0

Those desirous of having a bath thus fitted, are requested to forward to J. B. H. and Co., their focus glass or a dark slide.

VERTICAL BATHS of plate glass, cemented with marine glue, have been made by J. B. H. & Co., up to 23 by 12 by $1\frac{1}{2}$ inches.

FLAT BATHS of patent plate glass, for the paper processes, 6 by 7..	2	0
„ „ 7 $\frac{1}{2}$ by 9..	3	0
„ „ 10 by 8..	3	6
„ „ 12 by 10..	4	6

These offer considerable advantages over dishes of any other material. The surfaces are perfectly true and thus they can be worked with a minimum of solution; being non-absorbent, risk of spoiling the silver solution (by contamination with another chemical previously contained therein) is entirely avoided. They can be made of any dimensions.

BOXES for holding 1 dozen glass plates.

Sizes... 2½ by 3¼ 3¼ by 4½ 5 by 4 4½ by 6½ 6½ by 8½
1s. 8d. 2s. 2s. 3d. 2s. 6d. 3s. 6d.

GLASSES, per doz. 1s. 6d. 2s. 3s. 0d. 4s. 0d. 7s. 0d.

DAGUERRETYPE Plates and sundries.

DISHES, *Porcelain* and *Gutta Percha*.

„ Hot Water, for waxing paper, using warm Hyposulphite, &c.,
from 7 6
„ Evaporating (Berlin Porcelain) from 0 6

GLASS Beakers and Flasks for preparing solutions, precipitating, &c.

„ Measures graduated
„ Drop 1 oz. 1s.; 2 oz. 1s. 3d.; 4 oz., 1s. 9d.; 10 oz., 2s. 6d., 20 oz. 3 6
„ Rods, each 0 3
„ Mortars 2 6
„ Funnels of all sizes, from 0 3
„ Stoppered bottles, narrow mouthed, 1 oz. & under, 2 oz., 3 oz., 6 & 8oz.
per dozen, 4s. 6d.; 5s.; 6s.; 7s.
„ Do., do., larger sizes, per lb., 1s. 3d.
„ Do., wide mouths, 1s. 3d. extra per dozen.

These bottles are of one uniform shape, and particularly well stopped.

HEAD RESTS, from each 5 0

MICROSCOPES, brass mountings for adjusting them to Photographic purposes

PAPER, Positive, by Towgood. This is among the best and most

uniform of all the Photographic papers per quire 2 6
„ Negative (Canson's) per quire 3 0
„ of Turner's, Whatman's and other manufacture.
„ Salted, size 11 by 9 per quire 3 0
„ Albumenized, do., do. „ 8 0
„ Sensitive for printing positives, *to order* „ 12 0
„ Iodized for Calotype, do. do. „ 12 0
„ Canson's ¼-sheet waxed, do. do. „ 8 0
„ Do. do., Iodized by Crookes's process „ 16 0
„ Do. do., do. sensitive to order „ 20 0
„ Bibulous and Filtering 1s. to 2 0

PASSE PARTOUT Frames, Morocco Cases, &c.

PRESSURE FRAMES for copying from negatives, with stout plate

glass, white wood 7 6
„ Superior finish in mahogany, with hinged
back to allow the inspection of picture,
size, 10 by 8 13 6
do. 12 by 10 16 6

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SCALES and WEIGHTS, in oak boxes.....	s. d.	
„ Mahogany do.	3	6
„ „ Glass pans.....	4	0
„ Superior do.	6	0
„ With Brass Standard, with box-end, beam, and weights, up to 4 ounces	7	6
STANDS, Levelling with adjusting screws.....	£1	10 0
„ Tripod for supporting the Camera, folding, French make....	3	6
„ Mahogany, Brass mounted ..	12	6
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STEREOSCOPES, Refracting in Mahogany	£1	2 6
„ Superior finish, adjusting eye pieces ..10s. 6d. to	5	0
„ Reflecting do.	12	6
„ Pictures, Daguerreotype, paper, and glass, for use in do.		

Meniscus Lenses, and Single or Double Achromatic Lenses of every dimension
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Apparatus for enlarging Photographs to any required size.

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		<i>s. d.</i>
ACID, Acetic Glacial.....	per oz.	0 8
" " " pure for paper	"	0 10
Formic	"	0 6
Gallic	"	2 0
Hydrochloric, pure.....	per lb. 1 0..	0 2
Nitric	" 1 6..	0 2
Sulphuric	" 1 6..	0 2
Pyrogallic	per drachm 2 6..	17 6
Succinic	"	4 0
AMMONIA, Liquid.....	per lb. 2 0..	0 2
Carbonate.....	" 2 0..	0 2
AMMONIUM, Bromide	"	4 0
Iodide	"	3 0
Chloride	"	0 3
and Silver Iodide (Solution)	"	2 6
Half a drachm added to one ounce of Collodion produces a very sensitive and uniformly good Iodized Collodion. It keeps perfectly well.		
BARIUM, Chloride.....	per lb. 2 6..	per oz. 0 3
CARYTA, Nitrate.....	" 2 6..	0 3
BROMINE	"	3 0
Chloride ..	"	0 0
Iodide	"	0 0
CADMIUM, Bromide.....	"	7 6
CHLORINE, Solution.....	per lb. 2 0 .	0 2
COLLODION	"	0 8
Hockin's Iodized ..	per lb. 12 0 ..	0 9

J. B. Hockin has the pleasure to state that the Collodion of his manufacture has been long employed, (by one Firm) of the highest rank in the Photographic Art, and pronounced by them (as it has been by all who have used it) *inferior to none*. It is uniform in constitution and rate of working, and will keep a month after Iodizing.

The Iodizing Solution may be had separate.

Persons wishing to export this article in quantity to countries where æther is cheap, may have their views forwarded by communicating direct with J. B. Hockin

For Export to India it is put up in hermetically sealed glass tubes a half-pint each.

COLLODION, <i>Archer's Formula Modified</i>	per ounce	0	9
„ <i>Cotton for preparing</i>	„	4	0
„ <i>Paper for ditto</i>	„	4	0
GOLD, Chloride, in 15 grain bottles	per bot	3	0
„ do.	per drachm	10	0
„ Solution for Daguerreotype	per pint	3	0
„ Salt (Sel d'or)	per bottle	4	6
„ Cyanide Solution (for gilding)	per oz.	0	3
GUTTA PERCHA, pure	per lb. 3s. ..	„	0 4
GRAPE SUGAR, pure	„	0	4
IODINE, Resublimed		2	6
„ Commercial		2	0
„ Bromide ..		0	0
„ Chloride		0	0
IRON, Protosulphate	per lb. 1s. 6d. ..	per oz.	0 2
„ Nitrate Solution, (1 in 6)	„ 1s. 6d. ..	„	0 2
„ Ammonio Citrate		„	1 0
„ Iodide		„	2 6
„ Alcoholic Solution, (1 in 4)		„	1 0
LEAD, Acetate		„	0 3
„ Nitrate		„	0 4
„ Iodide		„	2 6
LIME, Muriate (chlor. Calcium)		„	0 3
„ Acetate		„	0 6
„ Chloride ..		„	0 3
„ Pure, for making Bromide	per lb.	2	0
„ Bromide	per oz.	2	0
MERCURY, pure	per lb.	5	0
„ Bichloride	per oz.	0	6
NAPHTHA for burning, etc.	per pint	1	6
„ for making Solutions, etc.	„	2	0
„ Coal Naphtha (Benzole)	„	1	0
POTASSIUM, Bromide	per oz.	3	0
„ Iodide, pure	„	2	6
„ Fluoride, pure		2	6
„ Ferrocyanide, pure		0	4
„ Cyanide	per oz. 4d. and	0	6

		s. d.
POTASSIUM, Cyanide, pure	per oz.	3 0
POTASH, Nitrate	"	0 3
ROUGE, purest	"	0 6
SILVER, Sheet and Wire, pure	"	8 0
" Iodide	"	8 0
" Chloride	"	8 0
" Oxide	"	8 0
" Cyanide solution, for plating.....	per pint	10 0
" Double Iodide and Ammonium (liquid)	per oz.	2 6
" Nitrate Crystallised	"	5 0
" Hockin's Bath	per pint	7 6
SODA, Hyposulphite	per lb.	2 0
" Do. in solution, with the Silver Salts for toning positives, p. pint		3 0
SODIUM Chloride, pure	per oz.	0 3
SUGAR OF MILK.....	per ounce	0 4
TRIPOLI, finest Levigated	"	0 4
VARNISH, Amber and Chloroform	per fluid ounce	1 3
" White Lacquer	"	0 4
" Jet Black, for Positives	per bottle	1 0
WAX, pure White	per lb.	3 6
WATER, distilled	per gallon	0 6

The above Chemicals are all prepared with a view to their employment in Photography, and where *absolute purity* is desirable, it has been effected.

The Prices of many fluctuate exceedingly.

Where large quantities are consumed, a corresponding reduction will be made.

J. B. Hockin gives instruction in all the known processes of Photography, and graduates his lessons according to the wish of the Person learning—whether he intends to employ himself as Amateur, Professional, or to undertake the business of a Photographic Chemist. Terms arranged accordingly.

Every requisite for the practice of CHEMISTRY in general, and the ELECTROTYPE ART, and instruction therein. The latter branch has of late received considerable attention at the hands of the largest Printers and Publishers, in the manufacture of COPPER STEREOTYPES, which bids fair to entirely supersede the soft Metal Stereo. Printers supplied with apparatus, and their workmen INSTRUCTED in the method of using them.

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